

We claim:

1. A method to immunize a subject against malarial disease comprising:
 - a. administering to the subject a priming immunization preparation comprising one or more alphavirus replicons expressing a gene encoding a malarial antigen or combination of malarial antigens; and
 - b. subsequently administering to the subject a boosting immunization preparation comprising the malarial antigen or combination of malarial antigens, said preparation being selected from the group consisting of
 - 1) a recombinant non-alphavirus viral expression system encoding the malarial antigen;
 - 2) a preparation of the malarial protein antigen produced by recombinant DNA technology;
 - 3) a synthetic preparation of the malarial antigen;
 - 4) a malarial organism or extract thereof; and
 - 5) a polynucleotide vector expressing the malarial antigen, or a combination thereof.
2. The method of claim 1 wherein the alphavirus replicon preparation is selected from the group consisting of RNA replicons, DNA replicons, and alphavirus replicon particles.
3. The method of claim 2, wherein the alphavirus is selected from the group consisting of Venezuelan Equine Encephalitis Virus, Semliki Forest Virus, and Sindbis Virus.
4. The method of claim 1, wherein the malarial antigen is selected from the group consisting of a full-length malarial antigen, an immunogenic fragment thereof, or an epitope derived from the malarial antigen, or a combination thereof.
5. The method of claim 4, wherein the malarial antigen is selected from the group of malarial pathogens consisting of Plasmodium falciparum, Plasmodium vivax, and Plasmodium ovale.

6. The method of claim 5, wherein the malarial antigen is expressed at a stage of the malarial parasite life cycle selected from the group consisting of preerythrocytic, erythrocytic and transmission blocking.
- 5 7. The method claim 6, wherein the malarial antigen is selected from the group consisting of: , PfCSP, , PfEXP1, PfSSP2, PfLSA-1, PfLSA-3, PfMSP-1, PfAMA-1, PfEBA-175, PfMSP-3, PfMSP-4, PfMSP-5, PfRAP-1, PfRAP-2.
- 10 8. The method of claim 1, wherein the non-alphavirus viral expression system is selected from the group consisting of poxvirus, adenovirus, adenoassociated virus, and retrovirus.
9. The method of claim 8, wherein the poxvirus is selected from the group consisting of cowpox, canarypox, vaccinia, modified vaccinia Ankara, or fowlpox.
- 15 10. The method of claim 1 wherein the malarial antigen is selected from the group of malarial parasites consisting of Plasmodium falciparum, Plasmodium vivax, and Plasmodium ovale.
- 20 11. The method of claim 1, wherein multiple boosting immunization doses are administered.
12. The method of claim 2, wherein the alphavirus replicon is a naked nucleic acid and the priming immunization preparation consists of 1, 2, 3, or 4 doses of the naked nucleic acid.
- 25 13. The method of claim 1, wherein the priming immunization preparation is administered by a route selected from the group consisting of: subcutaneously, intramuscularly, intradermally, mucosally, orally, and by specialized injection devices.
- 30 14. The method of claim 1, wherein the boosting immunization preparation is administered by a route selected from the group consisting of: subcutaneously,

intramuscularly, intradermally, mucosally, orally, transcutaneously, and by specialized injection devices.

15. The method of claim 13 or 14 wherein the priming and boosting immunization preparations are administered by the same route.
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16. The method of claim 13 or 14 wherein the priming and boosting immunization preparations are each administered by a different route.
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17. A method to immunize a subject against malarial disease comprising:
 - a. administering to the subject a priming immunization preparation comprising Venezuelan Equine Encephalitis replicon particles expressing a gene encoding a malarial antigen, wherein said malarial antigen is selected from the group consisting of a full-length malarial antigen, an immunogenic fragment thereof, and an epitope derived from the malarial antigen; and
 - b. subsequently administering to the subject a boosting immunization preparation comprising the malarial antigen, said preparation comprising a poxvirus encoding the malarial antigen.
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18. An immunogenic composition comprising two immunizing components, wherein the first immunizing component comprises alphavirus replicons expressing a gene encoding a malarial antigen, and wherein the second immunizing component comprises a preparation expressing the malarial antigen, said preparation being selected from the group consisting of
 - 1) a recombinant non-alphavirus viral expression system encoding the malarial antigen;
 - 2) a preparation of the malarial protein antigen produced by recombinant DNA technology;
 - 3) a synthetic preparation of the malarial antigen;
 - 4) a malarial organism or extract thereof; and
 - 5) a polynucleotide vector expressing the malarial antigen,
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- or a combination thereof and wherein said malarial antigen is selected from the group consisting of a full-length malarial antigen, an immunogenic fragment thereof, and an epitope

derived from the malarial antigen.

19. The immunogenic composition of claim 18, wherein said first immunizing component, said second immunizing component or both further comprise an adjuvant.

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20. The immunogenic composition of claim 19 in combination with a pharmaceutically acceptable carrier.

10 21. An immunogenic composition comprising two immunizing components, wherein the first immunizing component comprises alphavirus replicon particles expressing a gene encoding a malarial antigen, and wherein the second immunizing component comprises a poxvirus vector expressing the malarial antigen.

15 22. The immunogenic composition of claim 21 wherein the alphavirus replicon particle is derived from VEE.

20 23. An immunogenic composition comprising two immunizing components, wherein the first immunizing component comprises alphavirus replicon particles expressing a gene encoding a malarial antigen, and wherein the second immunizing component comprises a adenovirus vector expressing the malarial antigen.

24. The immunogenic composition of claim 21, wherein the alphavirus replicon particle is derived from VEE.

25 25. An immunogenic composition comprising two immunizing components, wherein the first immunizing component comprises alphavirus replicon particles expressing a gene encoding a malarial antigen, and wherein the second immunizing component comprises a plasmid DNA construct expressing the malarial antigen.

26. The immunogenic composition of claim 21, wherein the alphavirus replicon particle is derived from VEE.